

Green Chemistry

Cutting-edge research for a greener sustainable future

rsc.li/greenchem

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 27(40) 12489–12846 (2025)



Cover

See Jacek Ryl,
Rodrigo A. A. Muñoz *et al.*,
pp. 12586–12601.

Image reproduced by
permission of
Marcel Takashi Ueta from
Green Chem., 2025, **27**,
12586.

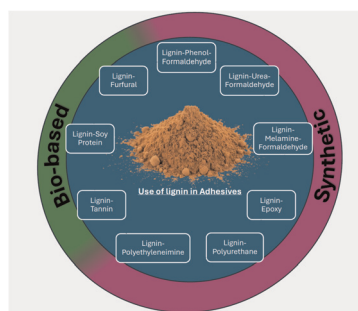
Image created by
Marcel Takashi Ueta using
the background mesh image
by GarryKillian and tire image
by ranilson-arruda, both from
Freepik. Molecule taken from
PubChem.

CRITICAL REVIEW

12499

Incorporation of lignin into adhesives: a review

Juan Paez and Pedram Fatehi*

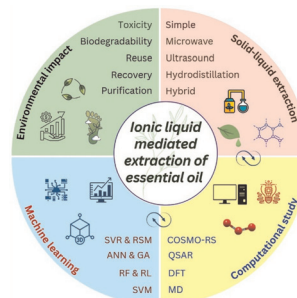


PERSPECTIVE

12538

Ionic liquid-mediated solid–liquid extraction and separation processes for essential oils: modern trends

Pankaj Kumar, Sonali Khanal, Isha Soni, Pooja Shandilya,
Manish Kumar, Dinesh Kumar, Tejwant Singh Kang and
Vinay Chauhan*



RSC Advances

At the heart of open access for
the global chemistry community

Editor-in-chief

Russell J Cox

Leibniz Universität Hannover, Germany

We stand for:



Breadth We publish work in all areas of chemistry and reach a global readership



Affordability Low APCs, discounts and waivers make publishing open access achievable and sustainable



Quality Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



Community Led by active researchers, we publish quality work from scientists at every career stage, and all countries

Submit your work now

rsc.li/rsc-advances

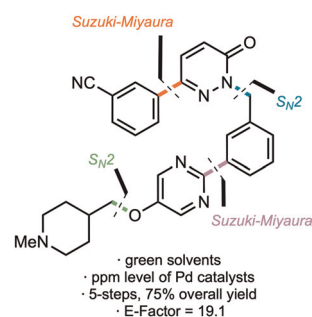
@RSC_Adv

COMMUNICATIONS

12574

Short and sustainable synthesis of the anticancer agent tepotinib

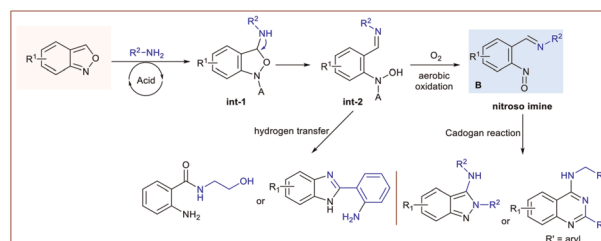
Eduam O. Boeira, Angélica V. Moro* and Bruce H. Lipshutz*



12580

Skeletal editing of anthranils for chemodivergent synthesis

Haixia Li, Jianming Liu, Yanping Huo, Xianwei Li, Qian Chen and Yang Gao*



PAPERS

12586

Additively manufactured electrochemical platforms from reclaimed ground tire rubber for environmental monitoring

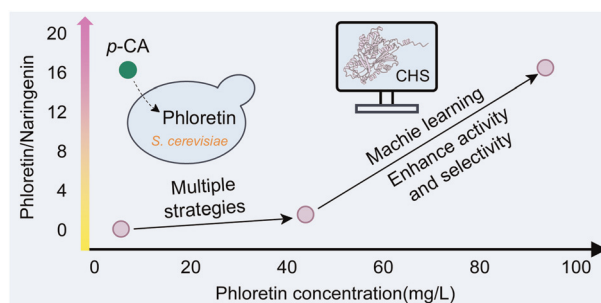
Gilvana P. Siqueira, Agata Rodak, Raquel G. Rocha, Tomasz Swebocki, Mateusz Cieřlik, Eduardo M. Richter, Krzysztof Formela, Jacek Ryl* and Rodrigo A. A. Muñoz*



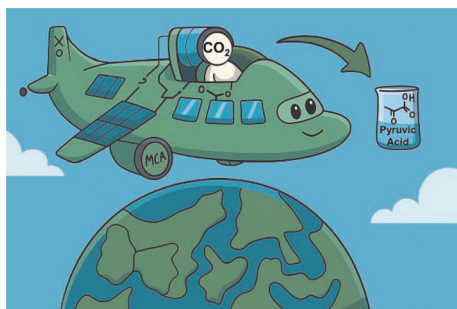
12602

Machine learning-guided engineering of chalcone synthase enables high-selectivity phloretin biosynthesis in yeast

Mei Li, Canyu Zhang, Hui Liang, Boyang Wu, Wenxi Yu, Guangjian Li,* Yufei Cao* and Wen-Yong Lou*



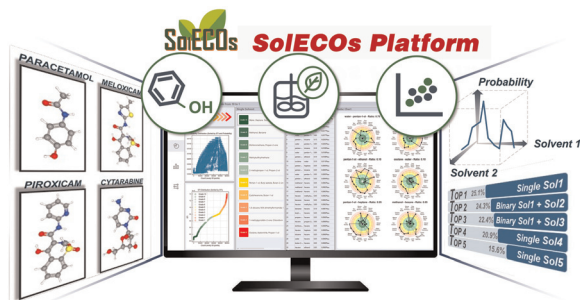
12613



Biomimicry of CO₂ transfer through a biotin-mediated ATP-free pathway

Abdussalam K. Qaroush,* Feda'a M. Al-Qaisi,* Ala'a F. Eftaiha,* Rana T. Abu-Saileek, Khaleel I. Assaf, Alex MacDonald and Philip G. Jessop

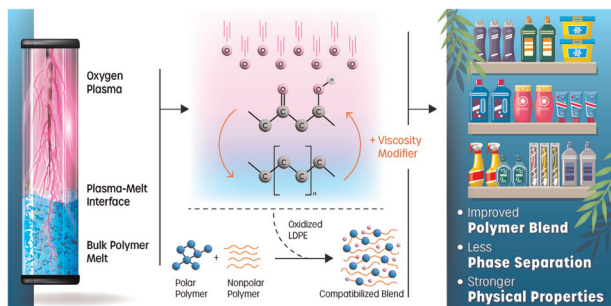
12621



SolECOs: a data-driven platform for sustainable and comprehensive solvent selection in pharmaceutical manufacturing

Yiming Ma, Shang Gao, Neel Mehta, Qinqing Fu, Wei Li and Brahim Benyahia*

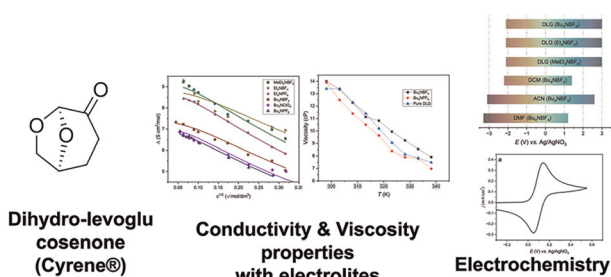
12642



Sustainable upcycling of polyethylene waste to compatibilizers and valuable chemicals

Darien K. Nguyen, Zoé O. G. Schyngs, LaShanda T. J. Korley* and Dionisios G. Vlachos*

12659



Electrochemically relevant physical-chemical properties of tetraalkylammonium salts solutions in the renewable solvent dihydrolevoglucosenone (Cyrene®); electrochemical behaviour of some representative organic molecules

José M. Ramos-Villaseñor, Jessica Sotelo-Gil, Maricarmen P. Flores-Morales, Ruben Vasquez-Medrano and Bernardo A. Frontana-Uribe*

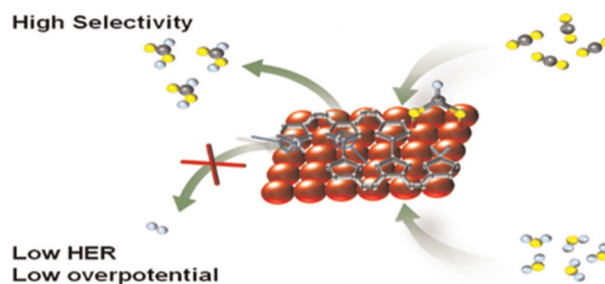


PAPERS

12672

Acidic CO₂ electroreduction to formic acid at low overpotentials over Cu modified with a dual site polymer

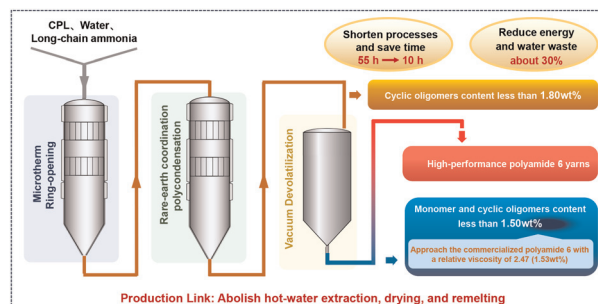
Yajuan Wang, Zijun Zhang, Chunjun Chen,*
Yingxuan Liu, Yichi Zhang, Mingjie Cheng, Xia Bai,
Shuaiqiang Jia, Mingyuan He, Haihong Wu* and
Boxing Han*



12679

Inhibition of cyclic oligomer formation via rare earth coordination and long-chain amine end capping during PA6 synthesis process

Junting Gao, Feng Gao, Ke Liu,* Wenxing Chen and
Wangyang Lu*

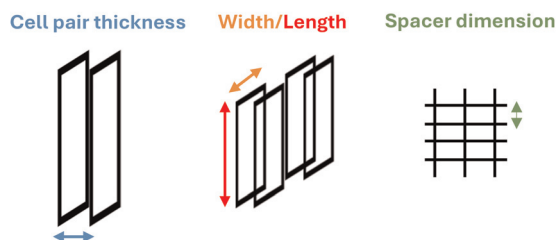


12694

Evaluating lithium recovery using electrochemical membrane separation: cost analysis and design strategies

Sobhan Neyrizi, Keimpe Nevenzeel, Dirk J. Groenendijk,
Ben in 't Veen, Jack Ledingham and Paul J. Corbett*

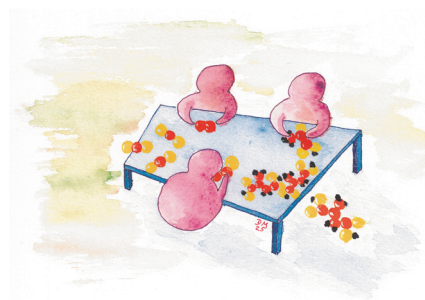
Optimizing an electrochemical Li recovery process



12715

Synthetic autotrophic yeast enables high itaconic acid production from CO₂ via integrated pathway and process design

Özge Ata,* Lisa Lutz, Michael Baumschabl and
Diethard Mattanovich

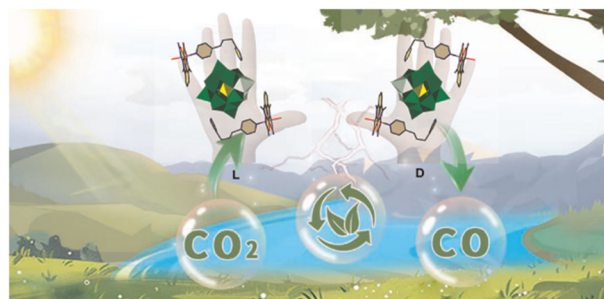


PAPERS

12778

Chiral chlorophyll-inspired clusters steering electron transfer for enhanced CO₂ photoreduction

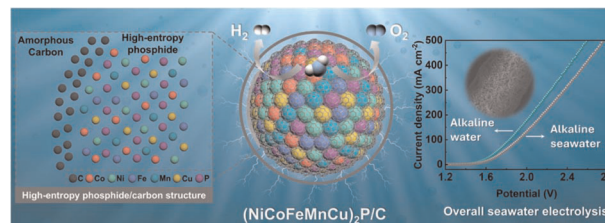
Yin-Hua Zhu, Jian-Bo Yang, Jiu Lin Zhou, Yong-Qi Ji, Hua Mei* and Yan Xu*



12785

An activity–selectivity–stability-balanced bifunctional high-entropy phosphide for overall seawater splitting at industrial-level current density

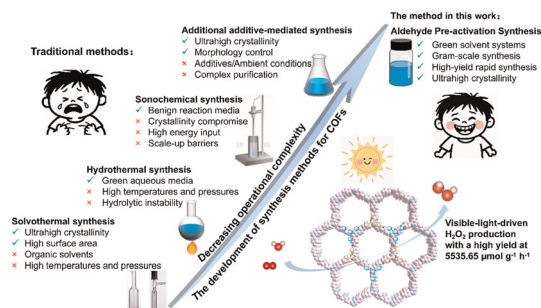
Changrui Feng,* Yifan Zhou, Shuying Li, Yuxia Jin, Meng Chen, Rui Yang, Wenjia Zhou, Zhengkun Xie,* Xiumin Li, Xiangyu Chen, Wenhao Lian, Abuliti Abudula and Guoqing Guan*



12798

Eco-friendly synthesis of imine-based COFs for efficient photocatalytic H₂O₂ production

Yayang Wang, Ting Xu, Zhongxing Zhang, Yaowen Wang, Jiming Huang,* Mi Tang and Zhengbang Wang*



12809

2-Methyl-2-(pyridin-2-yl)malononitrile: a site-selective cyano transfer reagent for photocatalytic cyanation reactions

Xiang-Chuang Tan, Lei Yan, Hao-Ni Qin and Peng-Fei Xu*



- ▶ bench-stable
- ▶ carbon-bound source of nitrile
- ▶ site selectivity
- ▶ prepared from non-toxic reagents

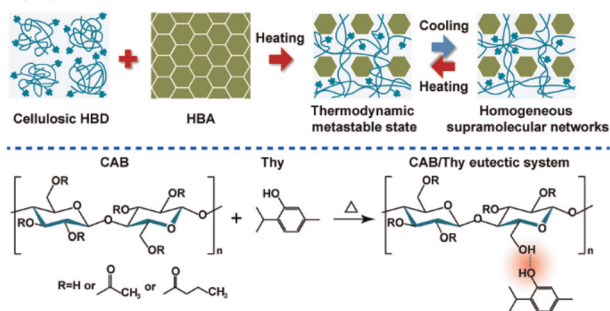


MPYMN



PAPERS

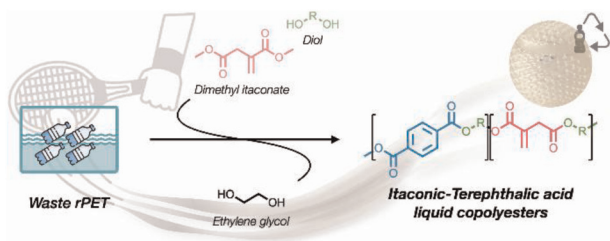
12819



A solvent-free route to fully recyclable, high-performance cellulosic plastics

Yuchen Cao and Ren'ai Li*

12830



One-pot depolymerization–repolymerization of PET waste into sustainable photocurable liquid copolyesters for high-performance additive manufacturing

Rosario Carmenini, Alberto Sanz de León, Tiziana Benelli, Loris Giorgini, Mauro Comes Franchini, Sergio I. Molina and Mirko Maturi*

